

**Research Assessment Exercise 2020**  
**Impact Case Study**

University: **The University of Hong Kong (HKU)**  
Unit of Assessment (UoA): **UoA 36, Philosophy**  
Title of case study: **Philosophy Research Enhances Critical Thinking**

**(1) Summary of the impact**

*Critical Thinking Web* (<http://philosophy.hku.hk/think>) is based on the research of Dr. Joe Lau and is one of the world's most comprehensive websites offering free, open learning resources on critical thinking. Since October 2013, the website has had more than 8.2 million page views by students, teachers, professionals, and other individuals from across the world. Related publications have been translated into nine languages and used in academic research, classroom teaching, professional training, and the development of online learning and curriculum reform. The site's international reach and uptake demonstrate that educational and professional organizations, governments, students and members of the general public have found it to be the best available resource for developing and enhancing critical thinking skills.

**(2) Underpinning research**

Dr. Joe Lau Yen Fong joined the Faculty of Arts' Department of Philosophy at the University of Hong Kong in 1994. Lau's research on critical thinking involves the study of basic principles of good reasoning and their application. His research emphasizes the importance of metacognition in the improvement of thinking skills, and how reasoning interacts with other aspects of cognition such as emotions and personality [3.1, 3.3, 3.4]. The design of *Critical Thinking Web*, which Lau co-founded in 2004 with Dr. Jonathan Chan of the Department of Religion and Philosophy at Hong Kong Baptist University, is guided by such theoretical findings. *Critical Thinking Web* is maintained by Lau and is hosted by HKU's Department of Philosophy.

In [3.3], Lau argued that the teaching of critical thinking ought to be part of a more general educational programme for enhancing metacognitive competence. Centrally, effective problem-solving in the modern world requires an extensive skillset in which metacognitive abilities such as self-learning and self-regulation are emphasized. However, such abilities are akin to intellectual virtues, and their acquisition requires an appropriate level of knowledge and practical mastery [3.4]. This applies not just to critical thinking but also to the cultivation of creativity, although it is often neglected in the discourse on that subject. These themes are emphasized in the *Critical Thinking Web* and in the Department's various knowledge exchange (KE) activities. Lau's article on the Umbrella Movement explores further the connections between critical thinking and civic education in light of recent political developments in Hong Kong [3.2]. Some of these connections are discussed in public talks and keynote lectures on general education around the world to a variety of specialist audiences and groups, including speeches at the Indonesian IB Schools Teachers' Conference (2011); Critical Thinking Week at the Nanjing campus of the New York Institute of Technology (2013); conferences organized or sponsored by the Federation for Self-financing Tertiary Education in Hong Kong (2016) and the Steering Committee on Cultural Quality Education of the Chinese Government (2017); and the Nagoya University Writing Center 4<sup>th</sup> International Symposium on Academic Writing and Critical Thinking (2019).

**(3) References to the research**

3.1 Lau, J.Y.F. *An Introduction to Critical Thinking and Creativity: Think More, Think Better*. Hoboken: Wiley, 2011.

A Simplified Chinese translation of the book was published in 2018, «批判性思维与创造力 - 越思考越会思考» (Shi Lin Publishers). (<http://www.bookdao.com/book/3310323/#>)

3.2 Lau, Joe Y. F. “Reflections on the Umbrella Movement: Implications for civic education and critical thinking.” *Educational Philosophy and Theory*, vol. 51, no. 2, 2017, pp. 163–174. [doi.org/10.1080/00131857.2017.1310014](https://doi.org/10.1080/00131857.2017.1310014)

3.3 Lau, Joe Y. F. “Metacognitive Education: Going beyond critical thinking.” *The Palgrave Handbook of Critical Thinking in Higher Education*. Eds. M. Davies and R. Barnett. New York: Palgrave Macmillan, 2015.

3.4 Lau, J.Y.F. “Knowledge and resilience.” *Behavioral and Brain Sciences*, 38, 2015, pp. 37–38. (2015 journal impact factor 20.415, 1 out of 51 in behavioral sciences, 2 out of 56 in neurosciences, 1 out of 14 in psychology, biological.)

#### **(4) Details of the impact**

The *Critical Thinking Web* is one of the world’s most comprehensive and effective websites offering free open learning resources on critical thinking and related thinking skills. Its extensive impact is reflected in its search engine ranking and web traffic data. The website consistently appears on the first page of Google search results for “critical thinking,” out of more than 431 million results. Since October 2013, there have been close to 4.6 million visits to the website, amounting to 8.2 million page views, with over 94% coming from outside Hong Kong, including from Europe, North America, Asia, Australia and Africa [5.1]. As evidenced in the sections to follow, students, teachers, professionals, and other individuals from around the world have made use of the website’s resources and applied them to enhance their learning, teaching, and professional or personal knowledge and skills. The website provides online material in English and in Traditional and Simplified Chinese. As further evidence of its international reach, it includes a 23-page mini-guide that has been translated by users of the site into Spanish, Bahasa Indonesian, Russian, Italian, and Farsi (Persian).

An exercise from the website was discussed in the book *The Art and Science of Intelligence Analysis* published by Oxford University Press in 2010. The website’s companion publication, *An Introduction to Critical Thinking and Creativity*, is written in English and published by Wiley. It is available in both e-book and paperback formats, and has been mentioned in many academic papers on curriculum development and critical thinking, appearing in more than 150 entries in the Google Scholar database. A Simplified Chinese translation was published in 2018, and Mongolian and Russian translations are now being prepared. Lau was awarded the Faculty KE Award in 2011 and received an HKU KE Grant to update both the content and design of the *Critical Thinking Web* in 2014.

#### ***Critical Thinking and the Hong Kong Liberal Studies Curriculum***

Liberal Studies is part of the secondary school curriculum in Hong Kong. Critical thinking is very relevant and many schools and learning portals have incorporated material from *Critical Thinking Web* or listed it as a useful resource, including the Liberal Studies portals of Radio Television Hong Kong, *Ming Pao* and others (in Chinese: 思方網). One Liberal Studies teacher describes Lau’s textbook as “truly the best book in the category which distinguishes itself from the rest by its clarity and approachability to the public” [5.2]. The pioneering summer course “Critical Thinking”, based on materials developed for *Critical Thinking Web*, has been offered at HKU since 2009 and attracts students from over 30 local and international secondary schools each year. In a session of the Hong Kong Legislative Council in December 2014 examining the Liberal Studies curriculum, Lau’s work on critical thinking was extensively referenced by one of the legislators, with key definitions subsequently adopted for incorporation into future governmental curriculum documents and training activities [5.3].

### ***Online Learning and Curriculum Development***

Lau's learning resources are used across multiple disciplines in schools and universities around the world. His research has contributed to curriculum development and reform in Hong Kong, China, Japan, the U.S., Canada, Pakistan, India, among others, and been incorporated into online portals and courses.

In 2014, Japan's Okayama University set up a task force to develop a learning commons with the aim of fostering critical thinking among students. The task force visited HKU and interviewed Lau. Some of the principal recommendations were based on Lau's expertise and appear in their report "Critical Thinking and Learning Commons: Initial Observations and Possible Applications." The section "Critical Thinking Education," in particular, makes extensive reference to Lau's book and online materials [5.4]. In 2016, Georgia Military College introduced a Quality Enhancement Plan, which includes a new critical thinking course that incorporates material from *Critical Thinking Web*. Other universities and colleges that have made use of these resources include Hong Kong Baptist University, the Open University of Hong Kong, Texas Southmost College, the University of Western Ontario, University of British Columbia, Valdosta State University, Eastern Washington University, Aga Khan University in Pakistan, and Ahmedabad University in India. The Electronic Engineering Department at the Chinese University of Hong Kong (CUHK) is using Lau's materials to teach engineering students in their Master's programme basic problem-solving skills [5.5].

A course largely based on *Critical Thinking Web* is available online from Saylor Academy, a non-profit initiative headquartered in Washington, D.C., working since 2008 to offer free and open online courses to all who want to learn. Other organizations that have made use of the resources developed by Lau include the Distance Education Centre Victoria in Australia, which recommends the online quizzes to its secondary school students; the Independent Learning Centre in Ontario, Canada, which produces secondary school courses that meet Ontario Ministry of Education curriculum standards; and the University of Texas at San Antonio, which uses Lau's work to help both its faculty and students in the teaching and learning of core competencies [5.6].

Dr. Otsubo, founder and former President of Japan's Miyazaki International College, has cited Lau extensively in discussing the role of critical thinking in liberal arts education on his blog and in his book on higher education in Japan, which was published in 2014. Lau's work has been blogged about on edutopia.org, a website funded by the George Lucas Educational Foundation. The post uses actual classroom practice to illustrate how Lau's critical thinking framework can be applied to K-12 (pre-college) education. The post has been shared 1,400 times on various social media platforms since 2014, including Oxford University Press's ELT (English Language Teaching) Twitter account, which has over 54,200 followers [5.7].

The Ministry of Education of the People's Republic of China, the Guangdong Provincial Education Office (广东省教育厅高教处) and Chaoxing Education Technology Ltd jointly sponsored the development of a Massive Online Open Course (MOOC) on critical thinking by Professor Xiong Minghui of Sun Yat-sen University. Professor Xiong drew extensively on Lau's book, *An Introduction to Critical Thinking and Creativity: Think More, Think Better*, to create the course, which aims to support China's national strategy of innovation-driven development. A directive issued by the Guangdong Provincial Education Office (《广东省教育厅关于本科高校开设<批判性思维导论>和<创新思维训练>课程的通知》 (粤教高函〔2017〕89号) in June 2017 instructs all high schools and universities to set up a critical thinking course and to make use of the MOOC for this purpose. The MOOC was launched in September 2017 and is now taken for credit by college and university students across China. In the three sessions that have taken place since its inauguration (September 2017 to January 2019), the course has been taken by 67,745 students from over 130 colleges and universities. One course website has already registered ten million visits.

According to Professor Xiong, “although there have been lots of textbooks on critical and creative thinking in English or Chinese,” Lau’s comprehensively-researched book “is the best choice for the needs of constructing a national innovation and entrepreneurship curriculum” because it “allows students to expand their critical thinking skills and apply them to their studies” [5.8].

### ***Professional Training***

*Critical Thinking Web* is used internationally by individuals and professionals who seek to improve their critical thinking through self-learning. Content from *Critical Thinking Web* is used in workshops and training material for professionals. For example, Lau’s material on scientific reasoning was originally used in a 2009 “think piece” in a global forum on Information and Communications Technology (ICT) and agricultural science, and is still available in an online depository at the UN’s Food and Agriculture Organization. Lau’s analysis was quoted in a 2014 newsletter by Associated Luxury Hotels International, which operates a network of more than 250 hotels and resorts. In 2017, the consultancy firm Hexagon translated material from the website into Italian and Russian to use in their training workshops. Hexagon works with entrepreneurs and small groups to offer experiential learning opportunities for adults with a focus on critical thinking, computational thinking and creativity, using digital technologies such as games and apps. In August 2018, Business Spring, a consultancy based in California, used Lau’s materials in a newsletter for employees at Horizon Marketing and Transportation, a fresh produce management and transportation company [5.9].

### **(5) Sources to corroborate the impact**

- 5.1 Web traffic data from October 2013 to September 2019.
- 5.2 Lesson plan from the RTHK Liberal Studies portal (<https://www.liberalstudies.hk>).
- 5.3 HK Government press release dated December 3, 2014: <https://www.info.gov.hk/gia/general/201412/03/P201412030516.htm>  
Legislative Council Official Record of Proceedings, December 3, 2014, pages 2940 to 2946. <https://www.legco.gov.hk/yr14-15/english/counmtg/hansard/cm20141203-translate-e.pdf>
- 5.4 Learning Commons Study Group Report, Okayama University, 2014. “Critical Thinking and Learning Commons: Initial Observations and Possible Applications.”
- 5.5 Email communications from Georgia Military College (2016); Hong Kong Baptist University (2015); Open University of Hong Kong (2014); Texas Southmost College (2016); Eastern Washington University (2016); Aga Khan University in Pakistan (2014); Ahmedabad University (2018); and CUHK (2018). Course syllabi from the University of British Columbia (2016) and Valdosta State University (2017).
- 5.6 Email communications from the Distance Education Centre Victoria in Australia (2013); Independent Learning Centre in Ontario (2017); and the University of Texas at San Antonio (2018). Course syllabus from the Saylor Academy (2015).
- 5.7 Listing for Dr. Otsubo’s book on the publisher’s website. (<https://books.bunshun.jp/ud/book/num/9784160088047>). Edutopia entry by Todd Finley: (<https://www.edutopia.org/blog/critical-thinking-pathways-todd-finley>) (2014).
- 5.8 Statement from project leader Professor Xiong Minghui of Sun Yat-sen University. Directive from the Guangdong Provincial Education Office. Course listing on the Chaoxing Education Technology Ltd website (<http://mooc1.chaoxing.com/course/200387305.html>).
- 5.9 Think piece from the UN’s Food and Agriculture Organization website (<http://agris.fao.org/agris-search/search.do?recordID=XR2012295356>). Copy of the newsletter for the Associated Luxury Hotels International (2014). Email from Hexagon (2017). Email from Business Spring (2018).